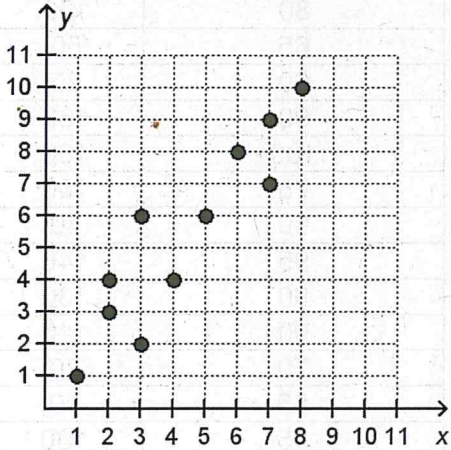


8.SP.1

SELECTED RESPONSE

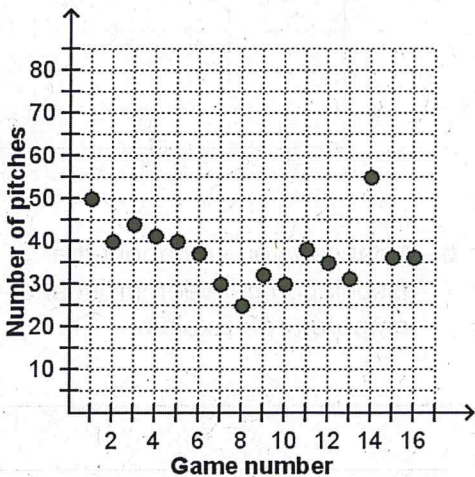
Select the correct answer.

1. Which phrase *best* describes the pattern of association between the variables x and y shown in the scatter plot?



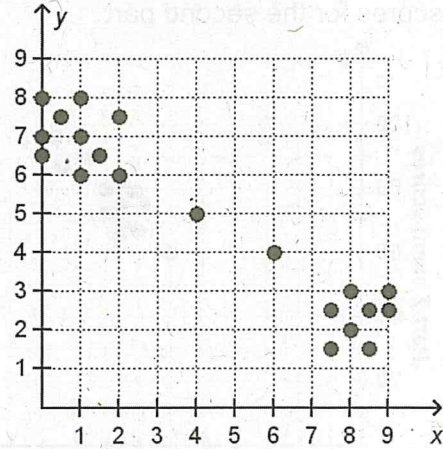
- (A) A positive, linear association
- (B) A negative, linear association
- (C) A positive, nonlinear association
- (D) No association

2. The scatter plot shows the number of pitches a baseball team's starting pitcher throws each game during one season. Which point, if any, is an outlier?



- (A) (1, 50)
- (B) (8, 25)
- (C) (14, 55)
- (D) No outliers

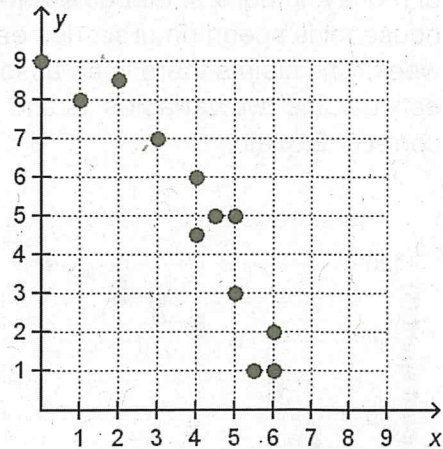
3. Which statement *best* describes any clusters there are in the data displayed in the scatter plot shown?



- (A) The data cluster around (1, 7).
- (B) The data cluster around (8.5, 2).
- (C) The data cluster around (1, 7) and (8.5, 2).
- (D) There are no clusters.

Select all correct answers.

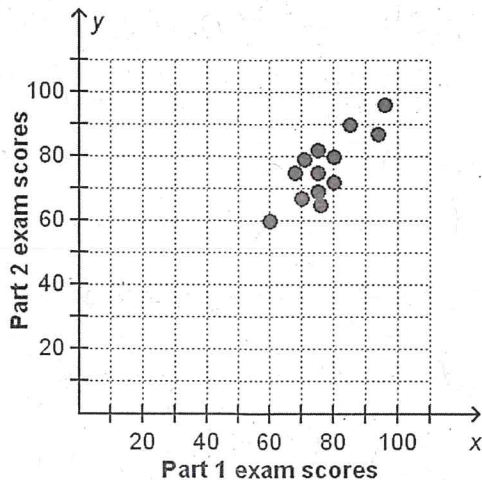
4. Which phrases *best* describe the pattern of association between the variables x and y shown in the scatter plot?



- (A) Positive association
- (B) Negative association
- (C) No association
- (D) Linear association
- (E) Nonlinear association

CONSTRUCTED RESPONSE

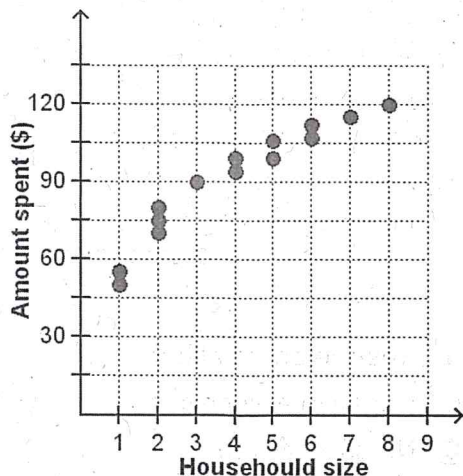
5. Nadia's English class took a two-part exam. The scatter plot shows the scores for the first part of the exam and the scores for the second part.



a. Describe the pattern of association.

b. Did students tend to do better, worse, or the same on part 2 of the exam than they did on part 1? Explain.

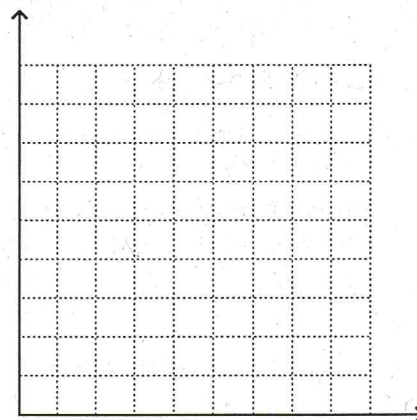
6. Sydney made a scatter plot of the amount of money, in dollars, that different-sized households spend on groceries each week. She claims there is no association between the two variables. Is she correct? Explain.



7. Calvin owns a small ice cream stand. His daily profit, in dollars, and the daily maximum temperature, in degrees Fahrenheit, for two weeks during the summer are shown in the table.

Temperature (°F)	Profit (\$)
90	160
80	100
65	50
60	20
90	160
100	160
75	100
60	40
95	140
90	130
90	110
70	80
85	90
85	100

- a. Make a scatter plot of the data, with temperature along the horizontal axis and profit along the vertical axis.



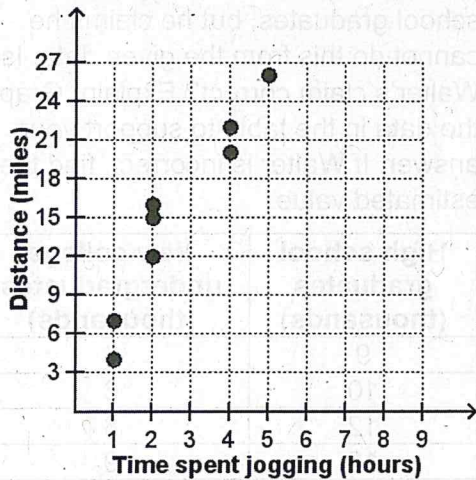
- b. What can you say about the association between profit and temperature? Explain.

8.SP.2

SELECTED RESPONSE

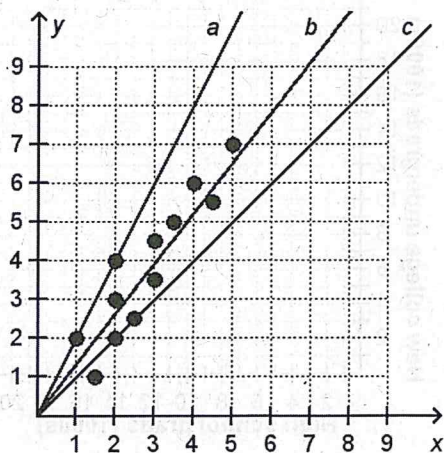
Select the correct answer.

1. The scatter plot shows the data for the number of hours Grace jogs each week for 8 weeks and the number of miles she jogs. What is the slope of a trend line for the data?



- (A) Positive
- (B) Negative
- (C) Zero
- (D) There is no trend line for the data.

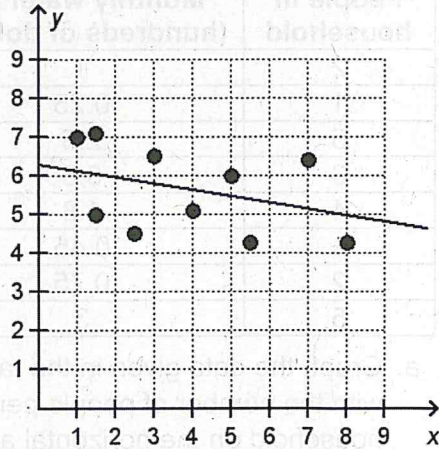
2. Which of the following lines *best* fits the data shown in the scatter plot?



- (A) Line a
- (B) Line b
- (C) Line c
- (D) None of the lines fit the data well.

Select all correct answers.

3. Which statements *best* describe the line and its fit to the data points shown?



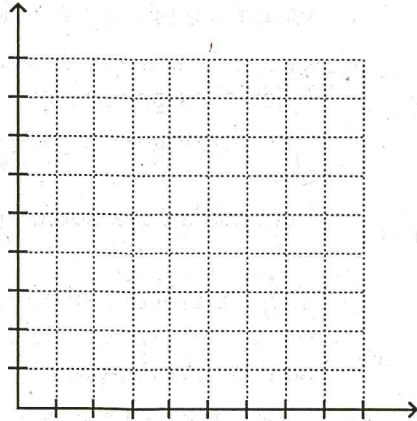
- (A) The line fits the data well because it follows the general trend of the data, which is positive and linear.
- (B) The line fits the data well because it follows the general trend of the data, which is negative and linear.
- (C) The line does not fit the data well because it does not follow the general trend of the data.
- (D) There are about an equal number of data points above and below the line, so it fits the data well.
- (E) There are about an equal number of data points above and below the line, so it does not fit the data well.
- (F) The points are close to the line, so there is a strong linear association between the values of x and y .
- (G) The points are far from the line, so there is a weak linear association between the values of x and y .

CONSTRUCTED RESPONSE

4. The table shows the number of people in a household and the household's monthly water bill, in hundreds of dollars.

People in household	Monthly water bill (hundreds of dollars)
2	1
1	0.25
5	2.5
6	3.5
4	1.8
1	0.45
2	0.75
5	3

- a. Graph the data given in the table, with the number of people per household on the horizontal axis and the water bill on the vertical axis. Describe the relationship between the two variables.

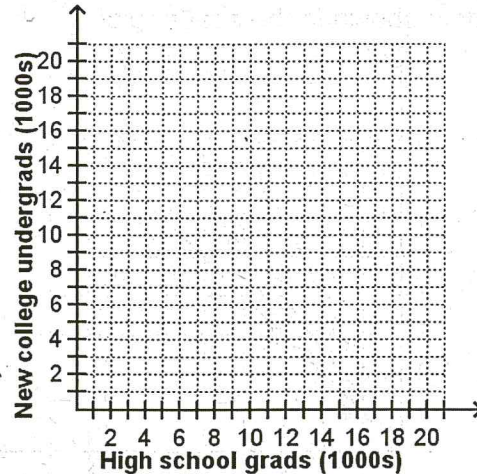


- b. Draw a trend line for the data. Is your trend line a good fit? Explain.

- c. Estimate the size of a household if the water bill is \$150.

5. Walter is comparing the number of high school graduates, in thousands, in his state each spring over the past 11 years and the number of new college undergraduates, in thousands, at a public university in his state each fall. The data are shown in the table. Walter wants to estimate the number of new college undergraduates if there are 13,000 high school graduates, but he claims he cannot do this from the given data. Is Walter's claim correct? Explain. Graph the data in the table to support your answer. If Walter is incorrect, find the estimated value.

High school graduates (thousands)	New college undergraduates (thousands)
9	6
10	6
12	8
15	9
15	10
16	10
17	14
18	14
18	13
18	15
19	15

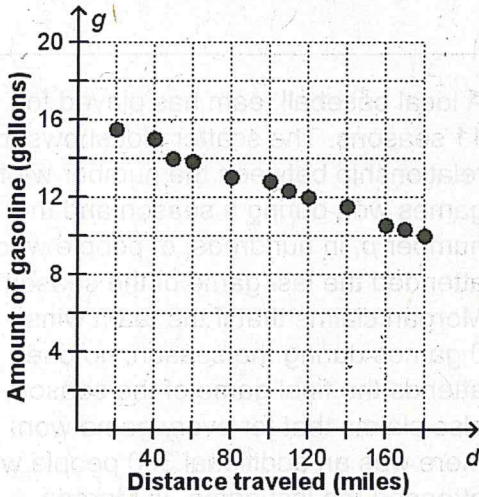


8.SP.3

SELECTED RESPONSE

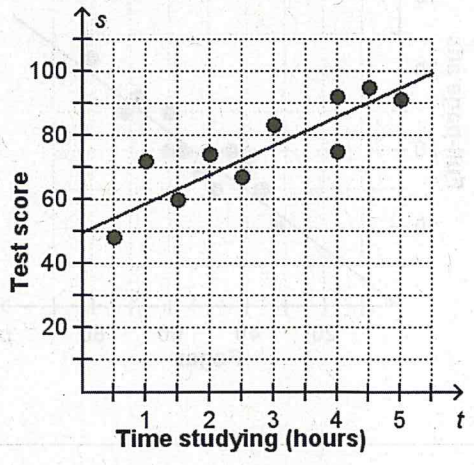
Select the correct answer.

1. The scatter plot shows the amount of gasoline g , in gallons, in a car's fuel tank and the distance traveled d , in miles, after filling the tank. The equation of a trend line is $g = -\frac{1}{30}d + 16$. How much gas is in the fuel tank when it is full?



- (A) 10 gallons (C) 16 gallons
 (B) 15 gallons (D) 30 gallons

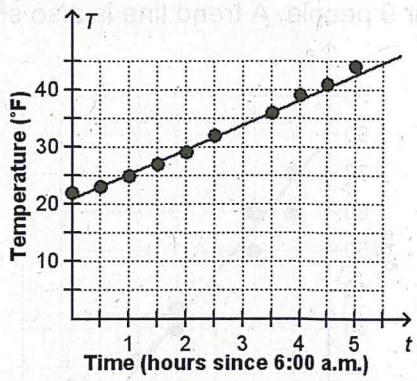
The scatter plot shows the temperature T , in degrees Fahrenheit, recorded on a particular day at various times t , in hours since 6:00 a.m. The equation of the trend line is $T = 4.3t + 21$. Use the trend line to match each description with its value.



2. Ms. Jackson asked each of her students how much time t , in hours, they studied for the test. She paired these numbers with the students' test scores s and created the scatter plot shown. The equation of the trend line is $s = 9t + 50$. On average, how does a student's score change for each additional hour of studying?

- (A) Decreases by 9 points
 (B) Increases by 9 points
 (C) Decreases by 50 points
 (D) Increases by 50 points

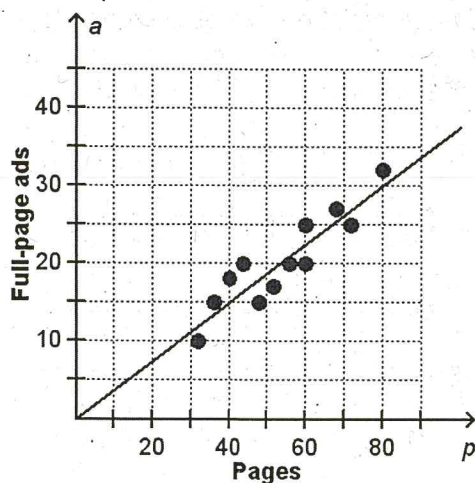
- _____ 3. The temperature at 6:00 a.m.
 _____ 4. The time, to the nearest half hour, at which the temperature reached freezing (32 °F)
 _____ 5. The temperature at 9:00 a.m.
 _____ 6. The increase in temperature each hour
 _____ 7. The time, to the nearest half hour, at which the temperature will reach 47 °F



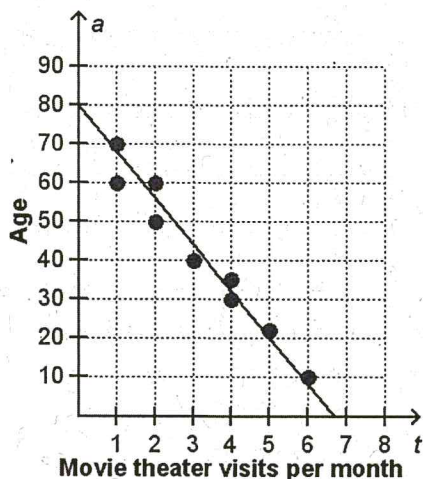
- A 4.3 °F
 B 21 °F
 C 33.9 °F
 D 47 °F
 E 6:00 a.m.
 F 8:30 a.m.
 G 11:30 a.m.
 H Noon (12:00 p.m.)

CONSTRUCTED RESPONSE

8. The scatter plot shows the relationship between the number a of full-page ads in a magazine and the number p of pages in each issue for 12 issues of the magazine. What percent of the pages are full-page ads? Explain.



9. The scatter plot shows the relationship between the average number of times t a person goes to a movie theater per month and the person's age a , in years, for 9 people. A trend line is also shown.

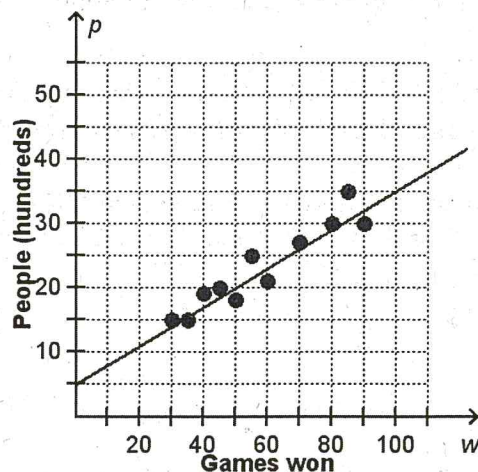


- a. What is the equation of the trend line? Show your work.

- b. Interpret the constants in the equation of the trend line.

- c. Use the equation of the trend line to predict the age of a person who on average goes to a movie theater 3 times per month. Show your work.

10. A local baseball team has played for 11 seasons. The scatter plot shows the relationship between the number w of games won during a season and the number p , in hundreds, of people who attended the last game of the season. Morgan claims that if the team wins 0 games during the season, no one attends the final game of the season. She also claims that for every game won, there was an additional 300 people who attended the last game. Is Morgan correct? Explain using the equation of the trend line.



8.SP.4

SELECTED RESPONSE

Select the correct answer.

1. In a poll, 150 students were asked if they prefer camping or going to the beach during their summer vacations and their gender. The data are shown in the two-way frequency table. What is the relative frequency of students who prefer going to the beach among all the students polled?

	Camping	Beach	Total
Boys	36	52	88
Girls	24	38	62
Total	60	90	150

- (A) 25.3%
- (B) 34.7%
- (C) 40%
- (D) 60%

2. In a poll, 200 people were asked if they prefer rock or country music. The length of their hair was also recorded. The data are shown in the two-way frequency table. Based on the table, which of the following statements is true?

	Rock	Country	Total
Short hair	75	50	125
Long hair	45	30	75
Total	120	80	200

- (A) People who prefer country music are more likely to have long hair than those who prefer rock music.
- (B) People who prefer country music are less likely to have long hair than those who prefer rock music.
- (C) People who prefer rock music are as likely to have short hair as those who prefer country music.
- (D) People who prefer rock music are more likely to have short hair than those who prefer country music.

3. In a poll, 100 people were asked to indicate if they prefer to drive a truck or a car and their gender. The data are shown in the two-way frequency table. Based on the table, which of the following statements is NOT true?

	Truck	Car	Total
Men	24	28	52
Women	12	36	48
Total	36	64	100

- (A) Women are more likely to prefer driving cars than men.
- (B) Men are less likely to prefer driving trucks than women.
- (C) Women are less likely to prefer driving trucks than men.
- (D) Men are less likely to prefer driving cars than women.

Select all correct answers.

4. Jordan asked 100 students at her school if they prefer cats or dogs. She also recorded their gender. The data are shown in the two-way frequency table. Based on the table, which of the following statements are true?

	Prefer cats	Prefer dogs	Total
Boys	8	38	46
Girls	24	30	54
Total	32	68	100

- (A) Boys are less likely than girls to prefer cats.
- (B) Girls are more likely than boys to prefer dogs.
- (C) Boys are equally as likely as girls to prefer dogs.
- (D) A student is more likely to prefer dogs to cats.
- (E) A girl is more likely to prefer dogs to cats.
- (F) A boy is more likely to prefer dogs to cats.

CONSTRUCTED RESPONSE

5. In a poll, 200 computer users were asked if they prefer using a laptop computer or a desktop computer. Their age was also recorded. The data are shown in the two-way frequency table. How does age influence computer preference? Use relative frequencies to explain your answer.

	Laptop	Desktop	Total
40 years old or older	38	55	93
Under 40 years old	86	21	107
Total	124	76	200

6. In a poll, 100 people were asked if they prefer spring or fall and if they prefer summer or winter. The data are shown in the two-way frequency table. Is there an association between a preference for summer and a preference for fall? Use relative frequencies to explain your answer.

	Summer	Winter	Total
Spring	36	12	48
Fall	27	25	52
Total	63	37	100

7. A poll of 200 voters in a community found that 30% are Democrats and 40% are independents. Of those who are Democrats, 40% are male. Of those who are Republicans, 60% are female. Of those who are independents, 60% are female.
- a. Make a two-way frequency table using the given information.

	Dem.	Rep.	Ind.	Total
Male				
Female				
Total				

- b. Is there an association between gender and political party? Explain.

8. Edwin asked 150 students at his school if they prefer math or English classes. He also asked if they prefer fiction or nonfiction books. His results are shown in the two-way frequency table. Edwin wanted to know if there is an association between preferring nonfiction books and preferring math classes. His work is shown. Is Edwin correct? If so, explain. If not, identify the error and describe the correct association.

	Math	English	Total
Fiction	37	42	79
Nonfiction	49	22	71
Total	86	64	150

Relative frequency of students who prefer nonfiction books among all students polled:

$$\frac{71}{150} \approx 0.473 = 47.3\%$$

Relative frequency of students who prefer nonfiction books among those who prefer math classes:

$$\frac{49}{86} \approx 0.569 = 56.9\%$$

Since $47.3\% < 56.9\%$, students who prefer math classes are more likely than the others to prefer nonfiction books.